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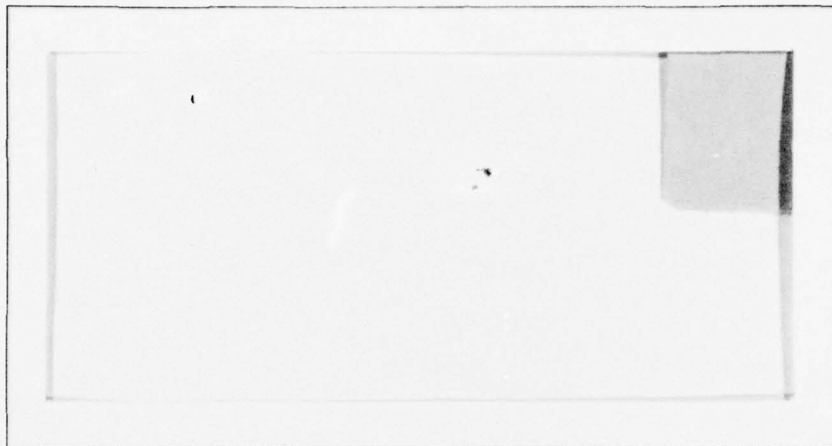
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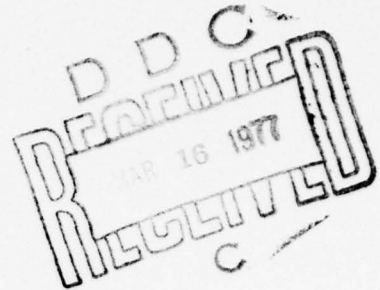
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EFFECTS OF JOB EXPERIENCE
ON PERSONALITY

Kenneth R. Brousseau
University of Southern California

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— Abstract —

Previous theory and research concerning job effects on personality are briefly reviewed. A new theoretical model is presented which proposes that individuals' life orientations and levels of emotional well-being are influenced by the stimulus complexity of their job experiences. Hypotheses derived from the model are proposed for 116 engineers, scientists, and managers employed by a large petroleum products company. Five characteristics of employees' jobs were measured using the Hackman-Oldham Job Diagnostic Survey. Longitudinal data were collected on four personality characteristics as measured by the Guilford-Zimmerman Temperament Survey. Results of Analyses show that two personality characteristics (Active Orientation and Freedom from Depression) are influenced by several job characteristics. Implications for job design and career development are discussed briefly.

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EFFECTS OF JOB EXPERIENCE ON PERSONALITY

Kenneth R. Brousseau
University of Southern California

During the past two decades, a considerable amount of research has focused on the ways in which employees react to their jobs. Most of this research has investigated the effects of a variety of job-related variables on employee satisfaction, work motivation, and performance. In many cases, studies in this area have generated findings which suggest ways in which jobs can be designed to enhance productivity and the quality of work life (Cummings, Molloy & Glen, 1975; Hackman, 1977).

Recently, several groups of researchers have reported findings which show that an individual's affective and behavioral responses to his work depend not only on the characteristics of his job, but also on certain aspects of his personality, such as his need for personal growth (Hackman & Lawler, 1971; Brief & Aldag, 1974; Sims & Szilagyi, 1974; Zierden, 1975; Hackman & Oldham, 1976) and his work values (Robey, 1974; Wanous, 1974). These findings emphasize the importance of the "fit" between an individual's personality and the characteristics of his job, and indicate that in undertaking job redesign projects, individual differences must be given careful consideration.

What these findings do not indicate, however, is whether individual personality differences themselves result in part from qualitative differences in the kinds of work people experience as they move along their career paths. This is an important issue. If individuals' personalities are modified by their work experiences, the fit between the person and his job must be viewed as a dynamic rather than a static

relationship. Therefore, a job designed to mesh well with an individual's current personality may differ from the kind of job for which he would be best suited in the future. This would suggest that the dynamic character of relationships between individuals and their jobs also must be taken into consideration when designing jobs.

Effects Of Work On Personality: Past Research

During the past fifteen years, several researchers have reported findings which indicate that certain characteristics of individuals' jobs may influence dimensions of their personalities, such as personal orientations, values, intellectual functioning, and emotional well-being. A pioneering study focusing directly on the impact of job experiences on personality was conducted by Arthur Kornhauser (1965), who investigated the mental health of over 600 blue collar workers in the auto industry. Each worker received a mental health score based on his responses to interview questions, and was classified into one of four job categories ranging from jobs requiring relatively high amounts of skill to those requiring very little skill. The results of Kornhauser's analysis revealed a marked decline in mental health scores corresponding to a decline from the higher to the lower skilled job categories. Specifically, workers employed in the lower skilled jobs, compared to those in higher skilled jobs, more frequently reported low self-esteem, high anxiety, few friendships, low levels of satisfaction with life, and an absence of an active or goal-directed orientation to life. Kornhauser reported that further analysis showed that differences in certain background characteristics (most notably, education) between workers in different job categories partially accounted for the results, but not by amounts sufficient to wipe out the pattern of his original findings.

More recently, Kohn and Schooler (1969; 1973) and Kohn (1971) report similar findings based on a survey of over 3100 male adults employed in occupations ranging from executive positions to unskilled blue-collar jobs. Analysis of their data revealed statistically significant relationships between various dimensions of the men's jobs and numerous aspects of their psychological and emotional functioning. In particular, their findings showed that freedom from close supervision and the complexity of employees' jobs are positively associated with strong values for self-direction, favorable self-images, and intellectual flexibility. Like Kornhauser, they found that, although positive relationships exist between levels of education and the men's personality characteristics, the relationships between the kinds of jobs the men performed and their personalities could not be adequately accounted for by education.

Striking parallels with the findings of Kornhauser and those of Kohn and Schooler can be found in other research (see reviews by Argyris, 1973; and Kasl, 1974). For example, Meissner (1971), in a study of 206 blue-collar workers employed in the wood products industry, found that the more a worker's job involves decision-making or allows personal discretion, the more likely he is to engage in leisure activities that involve "planning, coordination, and purposeful action." Similarly, workers whose jobs are socially isolating are inclined to spend their leisure time in ways that "reduce their exposure to situations in which they have to talk," and also tend to spend "less time in organized and goal-directed activities."

In another study, Torbert (1973) surveyed 209 blue collar workers employed by a machine tool manufacturer and by an automobile manufacturer.

He reports that the greater the extent to which the workers' jobs provided opportunities for decision making, using a variety of skills and abilities, and completing a "whole" work unit or process (rather than a fragment of a unit or process), the more inclined they were to be actively involved in leisure activities (e.g., activities perceived as contributing to self-development, community service, or expressive of a dominant leisure interest). In line with the findings of the studies discussed above, he found that the relationships between job characteristics and leisure orientations existed substantially independently of education.

Job Effects On Personality: Previous Theories

Although the researchers whose work is described above demonstrate significant relationships between the kinds of jobs individuals perform and various dimensions of their personalities, their findings result from analyses of cross-sectional data. Therefore, causal interpretations of the findings are equivocal. In particular, as Kohn and Schooler (1973) point out, they do not conclusively resolve the question about the extent to which one's job "affects or only reflects" one's personality. Nevertheless, the findings are sufficiently compelling to warrant serious consideration of the processes by which job experiences might influence personality.

Various authors have offered theories to explain the ways in which an individual's personality can be affected by his job. For example, Kornhauser (1965) has suggested that work normally serves as a "stabilizing, integrating, and ego-satisfying" influence in the pattern of one's life. However, to the extent that an individual's job fails to provide him with opportunities to express his needs, his development and

effective functioning as a person will be impaired. Here, Kornhauser assumes that individuals possess common needs which are most effectively expressed by performing jobs which utilize their skills and abilities.

Arguing from a somewhat different perspective, Argyris (1973) has suggested that work experiences serve either to enhance or inhibit individuals' growth along several developmental continua, proceeding from "infancy" characteristics (i.e., dependency, limited abilities, restricted time perspective) on one end to adult characteristics (i.e., autonomous control over self and environment, multiple abilities, long time perspective) on the other. He argues that job characteristics (or contexts) which allow independent behavior facilitate expressions of personality characteristics located on the adult ends of the continua. Jobs which prevent independent behavior encourage expression of infant personality characteristics.

Kohn and Schooler, on the other hand, suggest that job experiences affect personality by influencing one's perceptions of reality. In other words, the "reality" that one learns at work tells one about what is, and what is not, appropriate and possible behavior, and shapes one's beliefs about one's own self-worth (Kohn, 1969; Kohn and Schooler, 1969).

Each of these theoretical interpretations appears plausible and, collectively, they overlap to a substantial degree. They portray work as a sphere of human experience which has the potential either to provide individuals with, or to deprive them of, the kinds of experiences which enable them to satisfy fundamental needs and to develop into psychologically and emotionally well-rounded human beings who perceive themselves as capable of shaping their lives.

Job Complexity And Psychological Growth: A New Theory

The theories, however, provide few insights into the the processes by which job experiences influence one's personality. To gain insights into how these processes operate, it may be useful to consider jobs as sources of stimuli which have have the potential to affect the development of individuals' capacities for abstract or complex cognitive processes.

At any particular point in time, an individual's capacity for abstract thought depends largely on the kinds of stimuli to which he has been exposed during previous encounters with his environment. Specifically, individuals whose past transactions with the environment have frequently exposed them to complex patterns of stimuli should tend to acquire greater capacities for abstract thought, or more complex cognitive skills, than persons whose past environmental transactions have involved encounters with simpler stimulus patterns. As used here, "complex" stimulus patterns refers to fields of stimuli which are composed of diverse, novel, and/ or incongruous objects or events which contain high amounts of information. As an individual's experience with complex patterns of stimuli accumulates, he acquires a greater store of diversified information which enhances his ability to differentiate between various aspects of stimuli encountered in the future. That is, he becomes increasingly adept at utilizing a variety of dimensions to classify stimuli, and at differentiating stimuli along those dimensions.

As he becomes increasingly differentiated cognitively, however, the individual experiences a growing need to develop complementary skills which enable him to establish associations between what otherwise would remain isolated bits of information. That is, to "make sense" of his

world (i.e., to convert information into knowledge) he must become increasingly capable of integrating the elements of his experience into a conceptual framework that itself becomes progressively more complex, subtle, and complete. Thus, progressive movement toward higher levels of cognitive differentiation and integration defines the process of psychological growth (Maddi, 1972).

This view of psychological growth resulting from interactions with complex environments fits well with Schroder, Driver, and Streufert's (1967) theory relating environmental transactions to "integrative complexity" (i.e., highly complex cognitive structures). According to their model, people with highly complex structures are characterized by (1) the high degree of diversity with which they are capable of dealing; (2) their highly developed ability to discriminate between stimuli within dimensions; and (3) their enhanced potential for perceiving and generating new or alternate patterns of interactions or courses of action without relying on additional inputs of information from the environment. This last point is especially significant; it proposes that highly integrative individuals are capable of generating internally a wide range of interrelated schema for understanding their worlds which in turn enable them to perceive many alternatives for future courses of action.

Extending this line of reasoning further, Schroder et al. suggest a link between integrative complexity and goal orientations. They argue that one's level of cognitive complexity affects one's motives in that a high level of abstractness "provides grounds for more complex goals and plans." In this way, more complex individuals "seek to attain more things" (Schroeder, Driver, and Streufert, 1967, pp. 22, 104).

Put differently, persons with highly-complex, cognitive structures are likely to establish a greater number of goals and objectives than persons with simpler structures. The formulation of goals, however, presupposes belief in one's abilities to influence one's circumstances. Therefore, individuals with complex versus simple, cognitive structures should generally adopt an active stance toward their environment and their lives. They should perceive themselves as "free agents" in control of their lives, rather than pawns at the mercy of forces beyond their control (deCharms, 1968).

This has implications for emotional well-being. Because highly complex individuals are able to perceive a variety of alternatives for dealing with situations and because they are inclined to see themselves as able to influence circumstances, they should experience less anxiety or less "hopelessness" when their circumstances change than should persons with less complex cognitive skills. As Lefcourt (1973) points out, merely possessing the illusion, if not the reality, of control over one's circumstances reduces the negative psychological and emotional effects of potentially stressful and aversive situations.

On the basis of the notions presented in the preceding paragraphs, it can be argued that individuals whose past encounters with the environment have frequently involved exposure to complex patterns of stimuli will tend to develop greater capacities for abstract thought than persons exposed to simple environments. This will facilitate the development of an active, goal-directed orientation towards one's life which, in turn, should enable one to cope with difficult and changing circumstances with less emotional trauma than persons whose orientations are more reactive or passive. Moreover, the process of formulating, pursuing,

and attaining one's goals should contribute to feelings of self-confidence, positive self-esteem and, generally, should promote a high level of emotional well-being.

From this perspective, the potential for one's work experiences to influence one's personality becomes increasingly clear. Most people spend a major portion of their lives at work. Therefore, the kind of job an individual performs can be seen as a major factor determining the degree of stimulus complexity to which he is exposed. Significantly, the dimensions of jobs on which previous researchers have focussed appear likely to contribute to the stimulus complexity of job experiences. For example, jobs which involve performing a number of different kinds of tasks which tap a variety of skills and abilities; which expose individuals to or, better yet, involve them in the performance of a complete (rather than fragmented) work process; and which allow opportunities for self-direction would bring the individual into contact with relatively complex patterns of stimuli generated in the course of performing the job. In addition, to the extent that one's performance of a job is perceived to have significant effects on others and to the degree that the process of performing the job provides information about the effectiveness of one's performance, the complexity of job-related stimuli would be increased further. Following the reasoning presented above, performing jobs having these characteristics should, over time, enhance the development of one's cognitive capacities, and contribute to an active life orientation and a high level of emotional well-being. Performing a job which lacks these characteristics, on the other hand, should influence one's development in a reverse direction.

It should be noted, however, that certain factors may moderate the impact of an individual's work experiences on his personality. In particular, the complexity of one's cognitive processes, as well as the extent to which one possesses an active orientation, prior to taking a particular job, may determine the magnitude of the effects of one's subsequent experiences with that job. For example, an integratively complex person who possesses a highly active orientation prior to experiences with a job may, because of his propensity to shape his circumstances and to perceive numerous alternative courses of action, compensate for the paucity of complex stimuli provided by a simple job by involving himself in "richer" experiences in the non-work sector of his life. Even this strategy could fail, however, if the job was extremely simple and "real" constraints prevented the individual from taking a more complex job elsewhere.

A LONGITUDINAL STUDY OF JOB EFFECTS

Previously published findings on the ways in which individuals' personalities are influenced by the characteristics of their jobs have been cross-sectional. Therefore, as mentioned earlier, findings which reveal significant relationships between the characteristics of individuals' jobs and their personalities could be interpreted as reflecting individuals' job choices or selection processes, rather than the effects of jobs. Individuals whose personalities differ from each other might seek out or be selected for different kinds of jobs. To the extent, however, that other researchers (e.g., Kornhauser, 1965; Kohn and Schooler, 1969; Torbert, 1973) have been able to show that relationships between job characteristics and personality exist independently of background characteristics such as education, the selection argument seems to be a less plausible interpretation of the findings.

Nevertheless, the effects of jobs versus those of selection processes could be entangled in ways that would be impossible to unravel with analysis of cross-sectional data. Therefore, to avoid such interpretational limitations, this study analyses data on the characteristics of employees' jobs and longitudinal data on their personalities.

Strategy

The study consists of a sample of salaried personnel employed by a large petroleum-products company. Longitudinal personality data were collected in part from company archives containing the responses of employees to a standard personality instrument. These responses provided "pre-test" personality data. To collect "post-test" data, the company re-administered the same instrument to persons selected for the study during the Fall of 1975. During Spring, 1975, the author mailed to each prospective participant a questionnaire designed to assess the characteristics of his job.

Instruments and Measures

Personality. The personality instrument used to collect longitudinal data was the Guilford-Zimmerman Temperament Survey (GZTS). As part of the company's personnel assessment program, each salaried employee is routinely administered the GZTS shortly after he is hired. The GZTS is designed to measure nine personality characteristics (see Guilford and Zimmerman, 1948). To obtain scores on dimensions of personality relevant to the present research, a subset of items was selected for factor analysis on the basis of their face validity as indices of (1) inclination to think abstractly, (2) active (versus passive) life orientation; and (3) emotional well-being. Four factors emerged. Responses to items loading on each factor were summed to obtain scores for each employee on the following "scales."

1. **Active Orientation.** A high score on this scale indicates that an individual reports that he approaches new projects enthusiastically, takes the initiative to introduce himself to strangers, feels optimistic about his future, would enjoy the responsibility of organizing a new business, has a reputation for being lively, and enjoys confronting risky situations.
2. **Philosophical Orientation.** Persons with high scores on this scale indicate that they like to philosophize about things, enjoy discussing the "serious" questions of life, and like to analyze themselves.
3. **Freedom from Depression.** A high score on this scale indicates that an individual seldom feels miserable, possesses considerable vigor and vitality, seldom experiences unexplained mood changes, feels more energetic than most people, feels that life is worthwhile, and seldom feels listless or tired.
4. **Self-Confidence.** Individuals with high scores on this scale indicate that they find it easy to act naturally in any situation, are seldom affected by disappointments, do not feel upset when things work out wrong, and do not have feelings that are easily hurt by others.

Internal consistency reliabilities, test-retest reliabilities, and intercorrelations among the four scales are reported in Table 1.

Table 1 About Here

Job Characteristics. A modified version of the Job Diagnostic Survey (JDS) designed by Hackman & Oldham (1975) was used to assess the characteristics of employees' jobs. The JDS measures five "core" job characteristics:

1. **Skill Variety.** The extent to which a job involves a number of different activities that require the employee to use a variety of skills and abilities.
2. **Task Identity.** The degree to which performing a job involves completing a "whole" work unit, rather than a fragment of a unit, such that the results of one's efforts are visible in a finished product.
3. **Task Significance.** The degree to which a job has an appreciable impact on the lives and work of others, whether in the employee's own organization or located in the external environment.

TABLE 1

PSYCHOMETRIC PROPERTIES OF SCALES DERIVED FROM THE
GZTS, AND INTERCORRELATIONS AMONG THE DERIVED SCALES

Reliabilities of GZTS Scales ^a			
	Internal Consistency ^b Reliability	Test-Retest Reliability ^c	Mean Off-Diagonal Correlation ^d
Active Orientation	.58	.48	.07
Philosophical Orientation	.60	.42	-.09
Freedom from Depression	.76	.33	.07
Self-Confidence	.61	.37	.05

Intercorrelations among GZTS Scales ^a				
	1	2	3	4
1. Active Orientation	---			
2. Philosophical Orientation	.01	---		
3. Freedom from Depression	.34***	-.07	---	
4. Self-Confidence	.12	.10	.14*	---

Notes

a. N = 177

b. Estimated by adjusting the mean correlation between all items on the scale according to Spearman-Brown procedures.

c. Mean correlation between all items scored on a scale with items not included on that scale.

* $P < .05$ (one-tailed)** $P < .01$ (one-tailed)*** $P < .001$ (one-tailed)

4. Autonomy. The extent that a job allows the employee independence and personal discretion in scheduling his work, and in deciding how the work should be performed.
5. Feedback. The degree to which the process of performing the job itself provides the employee with information about the effectiveness of his performance.

The reader will recognize these characteristics as closely related to those which, as argued above, should contribute to the stimulus complexity of individuals' job experiences. In addition to these five job characteristics, the JDS also provides measures of several aspects of employees' work-related satisfaction, and "higher order" growth need strength. The JDS measures and their psychometric properties are described in detail by Hackman and Oldham (1974; 1975).

Background Data. The following additional data on each prospective participant were obtained from company records.

1. Age.
2. Level of education.
3. Tenure (in years) since first GZTS administration.
4. Job grade history (i.e., positions held in the organization's hierarchy during respondent's tenure with Oilco). Job grades range from 21 (entry level for salaried employees) to 32 (executive level).
5. Performance history (annual performance ratings ranging from 5.0 for low performance to 1.0 for high performance).
6. Manpower Category classification. Ranges from:
 - a. line manager
 - b. supervisor of technical personnel
 - c. supervisor of professional personnel
 - d. supervisor of hourly personnel
 - e. technical (e.g., earth scientists, engineers)
 - f. professional (e.g., accountants, sales personnel, marketing analysts)
 - g. technicians or clerical personnel

Sample

The sample for the study included 340 male, salaried personnel. As standard practice, the company conducts follow-up assessments of its salaried personnel after three or more years of tenure with the firm. Employees selected for participation in the present study were those scheduled for follow-up testing during 1975. Participation in this follow-up phase of the company's assessment program is voluntary. Consequently, "post-test" personality data were obtained from 177 of the 340 employees in the target sample, and 205 usable JDS questionnaires were returned to this researcher. This yielded complete data on all measures for 116 employees.

Table 2 About Here

Table 2 presents mean scores and standard deviations on each of the measures described above. Because partial data (i.e., pre-test personality scores and background information) were obtained for all 340 employees, it was possible to make some comparisons between those who participated in all phases of the study ("respondents") and those who failed to participate in one or the other phases of the data collection ("non-respondents"). The results of t-tests between these groups show that the time interval elapsed since the first GZTS administration was slightly greater for respondents than non-respondents; that respondents average about one-half a job grade higher in the company's hierarchy than non-respondents; and that, when first tested, respondents scored slightly higher on pre-test Active Orientation than non-respondents (see Brousseau, 1976).

TABLE 2

MEANS AND STANDARD DEVIATIONS OF SELECTED SCALES AND
DISTRIBUTIONS IN AGE, EDUCATION, AND MANPOWER CATEGORIES (N = 116)

	Mean	Standard Deviation
<u>Characteristics of Present Job</u>		
Skill Variety	5.58	1.06
Task Identity	5.26	1.89
Task Significance	5.58	1.16
Autonomy	5.45	1.06
Feedback	5.07	1.24
Summary Job ^a	5.40	0.76
<u>Tenure</u>		
Present Job (in months)	32.30	32.30
Since First GZTS Administration (in years)	5.91	2.97
<u>Job Grade</u>		
Present Grade	25.10	1.94
Grade at Time of Hire	21.80	2.16
<u>Performance Evaluation</u>		
Most Recent (1975)	2.17	0.67
Mean Annual Evaluation	2.29	0.43
<u>GZTS Scales^b</u>		
Active Orientation	2.80	0.32
Philosophical Orientation	2.35	0.64
Freedom from Depression	2.82	0.32
Self-Confidence	2.18	0.54

TABLE 2 (Continued)

Distributions in Age, Education, and Manpower Categories

	N	Percent
<u>Age</u> ^c		
25-29	19	16.4
30-34	77	66.4
35-39	11	9.4
40-45	9	7.8
<u>Education</u>		
Some Business College or Technical School	2	1.7
Some College	3	2.6
Business College or Tech- nical School Degree	1	0.9
College Degree	50	43.1
Some Graduate Work	27	23.3
Master's Degree	26	22.4
Doctorate	7	6.0
<u>Manpower Category</u>		
Line Manager	5	4.3
Supervisor of Technical Personnel	2	1.7
Supervisor of Professional Personnel	26	22.4
Supervisor of Non-Salaried Personnel	5	4.3
Technical	27	23.3
Professional	50	43.1
Technicians and Clerical Personnel	1	0.9

Notes:

- a. Summary Job scale equals the mean of five job dimension scores.
- b. Means and standard deviations are from most recent GZTS administration. Possible values range from 1.0 to 3.0
- c. In analyses, Age is treated as an interval level variable since data were collected for years of age rather than categories shown here. Mean age = 32.6.

Predictions

Based on the theory described earlier the following predictions can be made concerning the impact of job experiences on employee personalities:

- H1: The higher an employee's job rates on the JDS job dimensions (i.e., the greater the stimulus complexity of job experiences), the more his personality scores will shift toward stronger Active and Philosophical Orientations, greater Freedom from Depression, and greater Self-Confidence.
- H2: The personality shifts described in H1 will be greater for employees with high, versus those with low, lengths of tenure on their current job (i.e., job effects increase as a cumulative function of experience with a job).
- H3: The personality shifts described in H1 will be less pronounced for employees with high, versus those with low, pre-test Active Orientation scores (i.e., the stronger a person's pre-job active versus passive orientation, the less likely it is that he will be affected by subsequent job experiences).

Results

Partial correlational analysis was used to test the hypotheses described above. This analytical technique provides a useful method for evaluating relationships between job characteristics and personality "change." For example, the coefficient produced by calculating the partial correlation between a particular job scale and post-test scores on a particular personality scale, controlling pre-test scores on that scale, is actually a simple correlation between two "new" variables: (1) the residual variance remaining in the post-test personality scores remaining after removing that portion of the variance accounted for by pre-test personality scores, and (2) the residual variance in the job scale scores remaining after extracting that portion of the variance which can be accounted for by pre-test personality scores. In essence, partial correlational analysis, as used here, allows conclusions to be drawn about the extent to which differences between pre and post-test personality scores can be explained in terms of the effects of job

experience independently of relationships between pre-test personality characteristics and the characteristics of respondents' current jobs (i.e., independently of "selection" effects).

"Main Effects" of Job Experience. Table 3 presents the results of analyses designed to test the major hypothesis of the study--the prediction that the stimulus complexity of employees' jobs influences their personalities. The table entries are partial correlations between specific job scores and specific post-test GZTS scores, controlling for appropriate pre-test GZTS scores.

Table 3 About Here

The results provide mixed support for the hypothesis. The data indicate that employees' Active Orientation scores are influenced by Task Significance and Feedback, and that Freedom from Depression scores are influenced by Skill Variety, Task Significance, and Feedback. These effects are further reflected in the partial correlations relating the Summary Job scale to Active Orientation and Freedom from Depression. Philosophical Orientation, however, appears not to be influenced by any of the job characteristics. Similar results are obtained for Self-Confidence, with the exception that Task Identity shows a slight negative relationship to Self-Confidence.

Additional analyses show that those results presented in Table 3 which support the job effects hypothesis do not result from other non-job variables (e.g., age, position in the company hierarchy, salary) which might have been correlated with the influential job characteristics. Controlling such variables has virtually no effect on the results shown in the table (see Brousseau, 1976).

TABLE 3

PARTIAL CORRELATIONS BETWEEN PRESENT JOB CHARACTERISTICS
AND POST-TEST GZTS SCORES, CONTROLLING PRE-TEST GZTS SCORES

	Active Orientation	Philosophical Orientation	Freedom from Depression	Self Confidence
Skill Variety	.00	-.05	.21*	.12
Task Identity	.01	-.07	.07	-.15*
Task Significance	.31***	.10	.24**	.11
Autonomy	-.03	-.07	.07	-.04
Feedback	.26**	.01	.19*	.05
Summary Job	.17*	-.02	.23**	.02

Notes: N = 116. One-tailed significance tests.

* $P < .05$

** $P < .01$

*** $P < .001$

Tests of the Moderating Effects of Job Tenure. Table 4 reports the results of analyses conducted to evaluate the function of job tenure in moderating the magnitude of job effects. Partial correlations similar to those reported in Table 3 were computed separately for two groups: (1) employees with more than eighteen months tenure on their present jobs, and (2) employees whose present job tenure is less than or equal to eighteen months.

Table 4 About Here

Again, the results for Philosophical Orientation and Self-Confidence fail to conform to the hypothesis. On the other hand, the results for Active Orientation and Freedom from Depression provide substantial support for the prediction. In general, the partial correlation coefficients between job scales and Active Orientation and Freedom from Depression are more highly positive for the high tenure groups than the low tenure group. Several of the differences between the groups are statistically significant. The data indicate that the greater the length of time an individual is exposed to a job, the more his Active Orientation is influenced by Feedback stimuli received in the process of performing his job. The contrast between the groups is stronger for Freedom from Depression. They show that Freedom from Depression is increasingly influenced by the general characteristics (i.e., the Summary Job scale) of employees' jobs and, especially, by the Task Significance and Feedback characteristics as job tenure increases.

Tests of the Moderating Effects of Prior Active Orientation. Data presented in Table 5 represent the results of analyses designed to test the hypothesis that individuals' pre-test Active Orientations moderate

TABLE 4

PARTIAL CORRELATIONS BETWEEN PRESENT JOB SCALES AND POST-TEST GZTS SCALES
(CONTROLLING PRE-TEST GZTS SCALES) FOR EMPLOYEES WITH HIGH AND LOW PRESENT JOB TENURE (TN)

	Active Orientation			Philosophical Orientation			Freedom from Depression			Self Confidence	
	HI TN	LO TN	Z ^a	HI TN	LO TN	Z ^a	HI TN	LO TN	Z ^a	HI TN	LO TN
Skill Variety	.03	-.03	0.31	.04	-.12	-0.84	.31*	.10	1.15	.13	.15
Task Identity	.04	-.04	0.42	-.13	-.04	-0.48	.14	-.02	-0.84	-.21	-.06
Task Significance	.33**	.28**	0.29	-.02	.21*	-1.22	.47***	-.18	3.63***	.08	.15
Autonomy	-.06	.01	0.37	-.05	-.10	-0.26	.13	.01	0.63	-.16	.09
Feedback	.43***	.04	2.20*	-.13	.06	-1.00	.39**	-.02	2.26*	-.03	.13
Summary Job	.22	.08	0.75	-.08	.00	-0.42	.40***	.03	2.28*	-.05	.15

Notes: N = 56 for high tenure group (TN > 18 months). N = 60 for low tenure group (TN < 18 months).

a. Refers to significance of differences between r 's for high vs. low tenure groups

b. One-tailed significance tests

* $P < .05$

** $P < .01$

*** $P < .001$

the impact of their subsequent job experiences on their personalities. The usual partial correlations (see footnote b to Table 5) were calculated separately for two groups: (1) employees with relatively low pre-test Active Orientation scores, and (2) employees whose pre-test Active Orientation scores were high. The results shown in the table are inconclusive. The majority of the differences between the coefficients for the two groups are in the predicted direction, but the differences are small; only one difference is statistically significant.

Table 5 About Here

The reader should note, however, that the distribution of pre-test Active Orientation scores make these tests particularly difficult. Specifically, the scores were skewed toward the high end of the scale. A majority of respondents (the high AO group) received the highest possible pre-test score (possible scores range from 1.0 to 3.0), and the mean score for the remaining employees (the "low" AO group) was 2.89--far from a low score. In view of these data, it is surprising to find any results in the predicted direction.

Internal Validity of Results

An additional issue of importance to the present study concerns the internal validity of results which purport to demonstrate the effects of job experiences on personality. The analyses reported thus far involved the use of individuals' job scores on the assumption that these scores represent objective measures of employees' job characteristics. Previous use of the JDS has shown the instrument to discriminate rather well between the objective characteristics of different kinds of jobs (Hackman & Oldham, 1975). Nevertheless, there remains the possibility

TABLE 5

PARTIAL CORRELATIONS BETWEEN PRESENT JOB SCALES AND POST-TEST GZTS SCALE SCORES (CONTROLLING PRE-TEST GZTS SCALES) FOR EMPLOYEES WITH HIGH AND LOW PRE-TEST ACTIVE ORIENTATION (AO) SCORES

	Active Orientation			Philosophical Orientation			Freedom from Depression			Self Confidence		
	LO AO	HI AO ^b	Z ^a	LO AO	HI AO	Z ^a	LO AO	HI AO	Z ^a	LO AO	HI AO	Z ^a
Skill Variety	-.02	.03	-0.26	.03	-.08	0.58	.17	.20*	-0.16	.20	.07	0.70
Task Identity	.02	.01	0.16	-.12	-.06	-0.32	.16	.01	0.80	-.24	-.12	-0.65
Task Significance	.34**	.31**	0.18	.20	.09	0.59	.38***	.01	2.05*	.26*	.01	1.35
Autonomy	-.15	.11	-1.38	-.03	-.11	-0.42	-.07	.17	-1.27	.08	-.12	1.06
Feedback	.37***	.15	1.25	.05	-.02	0.37	.15	.22*	-0.38	.21	-.05	1.39
Summary Job	.18	.18	0.00	.05	-.05	0.53	.25*	.17	0.44	.17	-.07	1.27

Notes: N = 70 for high AO group. N = 46 for low AO group.

a. Refers to significance of differences between r_s for high vs. low AO groups.

b. Entries in column 2 are zero-order partials due to zero variance in pre-test AO scores for the high AO group. All employees in the high AO group scored at the top of the AO scale (3.0). Mean AO = 2.88 for the low AO group.

c. One-tailed significance tests.

* $P \leq .05$

** $P \leq .01$

*** $P \leq .001$

that even relatively minor distortions in job descriptions which correlate with individuals' perceptual biases or personalities could produce results which artificially support the job effects hypothesis. Therefore, additional analyses were conducted to minimize the influence of subjective distortions on job descriptions. These analyses were conducted in the same manner as those reported in Table 3, except that each individual's own job descriptions were replaced by the mean job scale scores for all persons in his particular manpower category. That is, if an employee was classified as a "supervisor of professional employees," the mean job scores for all persons similarly classified were substituted for his own particular job scores.

This procedure averages out of the data individual differences in subjective perceptions of job characteristics, leaving scores which reflect the general characteristics of jobs within the company's particular manpower categories. In so doing, however, "real" or objective differences that exist among jobs within categories are also averaged out of the data. Nevertheless, assuming that objective differences exist between the general kinds of jobs included in different categories--for example, between the jobs that chemical engineers and geologists (e.g., "technical" persons) perform, as opposed to the kinds of jobs performed by "supervisors of professionals" (e.g., sales personnel, marketing analysts)--analyses using average job scale scores should reveal significant relationships between job characteristics and employees' personality changes, similar to those reported in Table 3.

Table 6 About Here

TABLE 6

PARTIAL CORRELATIONS OF "SUBSTITUTE" (MEAN MANPOWER CATEGORY)
JOB SCALE SCORES WITH POST-TEST GZTS SCALES, CONTROLLING PRE-TEST GZTS SCALES

	Active Orientation	Philosophical Orientation	Freedom from Depression	Self Confidence
Skill Variety	-.05	-.10	-.03	-.06
Task Identity	.24**	.06	.38***	-.04
Task Significance	.26**	.01	.40***	-.09
Autonomy	.01	-.17*	.07	-.15*
Feedback	.13	.10	.11	.06
Summary Job	.26**	.00	.40***	-.10

Notes: N = 115. One manpower category had only one respondent. This respondent's scores were not included in these analyses.

a. One-tailed significance tests.

* $P < .05$

** $P < .01$

*** $P < .001$

Results of analyses which used mean job scores for manpower categories are reported in Table 6. Although the results shown in the table differ somewhat from those reported in Table 3, they provide additional support for the job effects theory. The data show that Active Orientation and Freedom from Depression are influenced by job characteristics. The results shown in Table 6, however, indicate that both of these personality dimensions are influenced by Task Identity and Task Significance, whereas the earlier results showed that Active Orientation is affected by Task Significance and Feedback, and that Freedom from Depression is influenced by Skill Variety, Task Significance, and Feedback. As was the case with the earlier results, however, the data in Table 6 do not support the hypothesis regarding job effects on Philosophical Orientation and Self-Confidence.

Additional analyses show that the results reported in Table 6 remain essentially unchanged when other non-job variables are controlled, except that the slight negative correlations between Autonomy and the two personality dimensions, Philosophical Orientation and Self-Confidence, are reduced to insignificant levels by controlling job grade. This may reflect that higher level jobs, which tend to entail more autonomy, also involve more stress--a factor which others (e.g., French & Caplan, 1972) have found to be negatively associated with various indicators of mental health and utilization of intellectual skills.

The data reported in Table 6 are a particularly demanding test of the job effects hypothesis since, as mentioned above, the mean job scale scores eliminate individual differences in subjective distortions of job characteristics.

DISCUSSION

The results provide mixed support for the job effects theory. Although the hypotheses predicted that four personality characteristics would be influenced by five job characteristics, the findings indicate that only two dimensions of personality are affected by two or, at most, three job characteristics. The important point to note, however, is that the data demonstrate the impact of job experience on some aspects of personality.

The particular job dimensions which appear to be most influential depend in part upon whether the analyses use individuals' job descriptions, or the average job scale scores for particular manpower categories. When individuals' job descriptions are used, results indicate that Task Significance and Feedback affect both Active Orientation and Freedom from Depression, and that the latter personality dimension is also influenced by Skill Variety. When, on the other hand, average job scale scores are used, Task identity is the only job dimension other than Task Significance that appears to significantly influence Active Orientation and Freedom from Depression. Although each of these job dimensions may actually influence personality, greater confidence is warranted in the effects of Task Significance and Task Identity which were revealed by analyses that utilized what should be the more reliable, although less sensitive, job measures (i.e., average job scale scores).

The analyses intended to assess the roles of job tenure and pre-test Active Orientation in determining the magnitude of the effects of job experiences on personality indicate that job tenure moderates the effects of job experiences on Active Orientations and, especially, on Freedom from Depression. Results regarding the role of Active Orientation,

however, were inconclusive. As mentioned earlier, the distribution of pre-test Active Orientation scores was such that comparisons of job effects on personality could only be made between persons whose pre-test Active Orientation scores were very high versus those whose scores were moderately high (rather than low in an absolute sense).

Implications

The results presented in this paper provide compelling evidence that some personality characteristics are influenced by job experience. Since these findings result from analyses of longitudinal data, they suggest that cross-sectional findings reported by other researchers which reveal significant relationships between job characteristics and personality do, in fact, reflect the effects of job experience. Indeed, had the present research relied only on cross-sectional data, the conclusions reached about the effects of jobs on personality would have been very similar to those which are based upon analyses of the longitudinal data (see Brousseau, 1976, pp. 126-129).

Recent findings reported by other researchers similarly help to resolve the selection versus job effects question. For example, unpublished results recently obtained by Kohn and Schooler (1976) in a longitudinal study of a sample of persons who were interviewed for their earlier research demonstrate conclusively that the substantive complexity of a person's job directly and positively affects his intellectual flexibility. This finding agrees with the theory and results presented in this paper.

It should be noted that the present research focusses on a rather select group of people in one particular organization. The majority of

the persons surveyed hold college degrees, and several have Ph.D. degrees. Most have strong Active Orientations and high levels of emotional well-being. And, for the most part, their jobs are relatively complex--comparable to the kinds of jobs typically held by administrators and professionals (for comparisons, see Van Mannen & Katz, 1974; Hackman & Oldham, 1974).

It does not seem likely, however, that the kinds of individuals surveyed in the study would be more influenced by their job experiences than would the general population of working people. In fact, just the reverse could be argued. Although the findings reported here shed little light on the issue, the possibility remains that persons (like those surveyed here) who have highly-developed, intellectual skills and strong active orientations might be less affected by their job experiences, than others. This finding might have been revealed had the sample included persons whose active orientations were relatively weak.

Similarly, one would not expect the kinds of jobs the employees performed to have any more or less effect on personality than less complex jobs. The difference should be that complex jobs tend to enhance cognitive skills, and produce relatively strong active orientations, and high emotional well-being, whereas simple jobs generally have the reverse effects. What this suggests is that the effects of jobs on personality would have been more apparent if the sample had included some persons who held relatively simple jobs. Therefore, the indications are that errors resulting from generalizing the findings of this research to the general population would be in the direction of under-estimating the effects of job experiences on personality. If so, the results have implications extending beyond the particular sample of persons surveyed.

In particular, the implications are that, as speculated earlier, relationships between individuals and their jobs are dynamic rather than static. An individual's work experiences may not only modify his personality, but fundamentally alter his orientation toward his job as well. Additional analyses conducted on data collected in connection with the present study shed some light on this issue. They indicate that Active Orientation and Freedom from Depression--the two personality dimensions which are shown to be affected by job experience--perform functions similar to growth-need strength in moderating individuals' affective and behavioral responses to their jobs. Persons who have strong Active Orientations and who are relatively free of depression tend to respond more favorably (in terms of internal work motivation and performance effectiveness) to highly complex jobs than do persons whose Active Orientations are weaker, and who are less free of depression (Brousseau, 1976, pp. (59-165).

The suggestion here is that experience with relatively complex jobs produces positive changes along those dimensions of individuals' personalities which determine the extent to which they experience their jobs as intrinsically motivating. If correct, this raises an interesting question: What happens to an individual after a substantial period of experience with a job which is substantially more complex than those he has previously performed? Will his psychological growth eventually reach a plateau at which he will remain satisfied? Or will he require an even more complex job to further advance or, at least, maintain his level of psychological and emotional development?

Clearly, to speculate here on the answers to these questions would be to proceed far beyond the available data. Nevertheless, the questions

relate to issues which are of paramount importance to those who are concerned with finding ways to design jobs--or perhaps more importantly, career paths--which enable individuals to maximally develop their capabilities and to achieve a high quality of life.

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